The listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (currently amended) A multi cell thermal processing unit comprising:

an air tight expandable common chamber module for containing an atmosphere other than ambient air, the chamber module comprising N ports;

a loading cell linked to the first port of the common chamber module via a gas tight door for providing to and receiving from the common chamber module a first and a second workpiece;

a first thermochemical processing cell linked to the second port of the common chamber module via a heat insulating door, the first thermochemical processing cell for providing substantially fixed first thermochemical processing conditions for thermochemical processing the first workpiece;

a second thermochemical processing cell linked to the third port of the common chamber module via a heat insulating door, the second thermochemical processing cell for providing substantially fixed second thermochemical processing conditions for thermochemical processing the second workpiece;

a transport mechanism disposed within the common chamber module for handling and transporting the first and the second workpiece within the thermal processing unit;

at least a processor in control communication with the first thermochemical processing cell, the second thermochemical processing cell, and the transport mechanism for controlling:

provision of the first and the second thermochemical processing conditions; and,

handling and transportation of the first and the second workpiece within the thermal processing unit;

and,

N-3 sealing covers for airtightly sealing the remaining N-3 ports, the covers being removable for mating the common chamber module to a processing cell or another common chamber module.

2. (previously presented) A multi cell thermal processing unit as defined in claim 1, comprising:

a second common chamber module having N ports, the first port of the second chamber module being connected to a fourth port of the common chamber module for providing transport communication therebetween;

a third thermochemical processing cell linked to the second port of the second common chamber module via a heat insulating door, the third thermochemical processing cell for providing substantially fixed third thermochemical processing conditions; and,

N-2 sealing covers for airtightly sealing the remaining N-2 ports, the covers being removable for mating the second common chamber module to a processing cell or another common chamber module.

3. (currently amended) A multi cell thermal processing unit as defined in claim 2, comprising a control communication link between the third thermochemical processing cell and the at least a processor, the at least a processor for controlling provision of the third thermochemical processing conditions, wherein the substantially fixed third thermochemical processing conditions are a portion of a thermochemical process comprising the first thermochemical processing conditions and the third thermochemical processing conditions.

4. (canceled)

5. (previously presented) A multi cell thermal processing unit as defined in claim 2, comprising a fourth thermochemical processing cell linked to the third port of the second common chamber module via a heat insulating door, the fourth thermochemical processing cell for providing substantially fixed fourth thermochemical processing conditions.

6. (currently amended) A multi cell thermal processing unit comprising:

an air tight common chamber for containing an atmosphere other than ambient air;

a loading cell linked to the common chamber via a gas tight door for providing to and receiving from the common chamber a workpiece;

a first thermochemical processing cell linked to the common chamber via a heat insulating door, the first thermochemical processing cell for providing substantially fixed first thermochemical processing conditions for nitriding the workpiece;

a second thermochemical processing cell linked to the common chamber via a heat insulating door, the second thermochemical processing cell for providing substantially fixed second thermochemical processing conditions for second nitriding treatment of the workpiece;

a cooling cell linked to the common chamber for controllably cooling the workpiece; [[and,]]

a transport mechanism disposed within the common chamber for handling and transporting the workpiece within the thermal processing unit[[.]]; and,

at least a processor in control communication with the first thermochemical processing cell, the second thermochemical processing cell, and the transport mechanism for controlling:

provision of the first and the second thermochemical processing conditions; and,

handling and transportation of the workpiece within the thermal processing unit.

7. (currently amended) A multi cell thermal processing unit as defined in claim 6, comprising a control communication link between the air tight common chamber and the at least a processor, the at least a processor for controlling provision of the atmosphere within the common chamber, the atmosphere substantially comprising ~~wherein the air tight common chamber is for containing substantially~~ an inert gas.

Claims 8 and 9 (canceled)

10. (currently amended) A multi cell thermal processing unit comprising:

an air tight common chamber for containing an atmosphere other than ambient air;

a loading cell linked to the common chamber via a gas tight door for providing to and receiving from the common chamber a first and a second workpiece;

a preheating cell linked to the common chamber via a heat insulating door, the preheating cell for providing a substantially fixed temperature for activating the workpiece;

a first thermochemical processing cell linked to the common chamber via a heat insulating door, the first thermochemical processing cell for providing substantially fixed first thermochemical processing conditions for thermochemical processing the first workpiece;

a second thermochemical processing cell linked to the common chamber via a heat insulating door, the second thermochemical processing cell for providing substantially fixed second thermochemical processing conditions for thermochemical processing the second workpiece; [[and,]]

a transport mechanism disposed within the common chamber for handling and transporting the first and the second workpiece within the thermal processing unit[[.]]; and,

at least a processor in control communication with the first thermochemical processing cell, the second thermochemical processing cell, and the transport mechanism for controlling:

provision of a first atmosphere composition and a first temperature of the first thermochemical processing conditions, and a second atmosphere composition and a second temperature of the second thermochemical processing conditions; and,

handling and transportation of the workpiece within the thermal processing unit.

11. (canceled)

12. (currently amended) A multi cell thermal processing unit as defined in claim 10, comprising a control communication link between the air tight common chamber and the at least a processor, the at least a processor for controlling provision of the atmosphere within

the common chamber, the atmosphere substantially comprising ~~wherein the air tight common chamber is for containing substantially~~ an inert gas.

13. (original) A multi cell thermal processing unit as defined in claim 12, comprising a third thermochemical processing cell linked to the common chamber via a heat insulating door, the third thermochemical processing cell having third thermochemical processing conditions for thermochemical processing at least one of the first and the second workpiece.

14. (original) A multi cell thermal processing unit as defined in claim 13, wherein the heat insulating door of at least one of the thermochemical processing cells is also a gas tight door.

15. (canceled)

16. (original) A multi cell thermal processing unit as defined in claim 12, comprising a preheating cell linked to the common chamber via a heat insulating door, the preheating cell for providing a substantially fixed temperature for heating at least one of the first and second workpiece to a predetermined temperature.

17. (original) A multi cell thermal processing unit as defined in claim 16, comprising a second other preheating cell linked to the common chamber via a heat insulating door, the second other preheating cell for providing a substantially fixed second other temperature for heating at least one of the first and second workpiece to a predetermined second other temperature.

18. (original) A multi cell thermal processing unit as defined in claim 16, comprising a quenching cell linked to the common chamber via a gas tight door, the quenching cell for providing a predetermined quenching operation for at least one of the first and second workpiece.

19. (original) A multi cell thermal processing unit as defined in claim 18, comprising a second other quenching cell linked to the common chamber via a gas tight door, the second other quenching cell for providing a second other predetermined quenching operation.

20. (original) A multi cell thermal processing unit as defined in claim 16, comprising a heating cell linked to the common chamber via a heat insulating door, the heating cell for providing heating of at least one of the first and second workpiece to a predetermined temperature after quenching.

21. (original) A multi cell thermal processing unit as defined in claim 20, comprising a cooling cell linked to the common chamber, the cooling cell for cooling the at least one of the first and second workpiece.

22. (currently amended) A multi cell thermal processing unit comprising:

an air tight common chamber for containing an atmosphere substantially comprising an inert gas;

a loading cell linked to the common chamber via a gas tight door for providing to and receiving from the common chamber a workpiece;

a preheating cell linked to the common chamber via a heat insulating door, the preheating cell for providing a substantially fixed temperature for heating the workpiece to a predetermined temperature;

a first thermochemical processing cell linked to the common chamber, the first thermochemical processing cell for providing a first portion of thermochemical processing conditions of a thermochemical processing process for thermochemical processing the workpiece;

a second thermochemical processing cell linked to the common chamber, the second thermochemical processing cell for providing a second portion of the thermochemical processing conditions of the thermochemical processing process for thermochemical processing the workpiece; [[and,]]

a transport mechanism disposed within the common chamber for handling and transporting the workpiece within the thermal processing unit[[.]]; and,

at least a processor in control communication with the first thermochemical processing cell, the second thermochemical processing cell, and the transport mechanism for controlling:

provision of the first and the second thermochemical processing conditions, wherein at least one of the first and the second thermochemical processing conditions comprises at least one parameter varying within a presetermined range; and,

handling and transportation of the workpiece within the thermal processing unit.

23. (canceled)

24. (original) A multi cell thermal processing unit as defined in claim 23, comprising a second other preheating cell linked to the common chamber via a heat insulating door, the preheating cell for providing a substantially fixed second other temperature for heating the workpiece to a second other predetermined temperature.

25. (canceled)

26. (withdrawn) A method for thermal processing a workpiece comprising ~~the steps of~~:

providing a first workpiece to a first thermochemical processing cell linked to a common chamber containing an atmosphere other than ambient air;

thermochemical processing the first workpiece by providing a first portion of thermochemical processing conditions of a first thermochemical process;

transferring via the common chamber the first workpiece from the first thermochemical processing cell to a second thermochemical processing cell linked to the common chamber after elapse of a first predetermined time interval;

thermochemical processing the first workpiece by providing a second portion of the thermochemical processing conditions of the first thermochemical processing process; and,

removing the first workpiece from the second thermochemical processing cell after elapse of a second predetermined time interval.

27. (withdrawn) A method for thermal processing a workpiece as defined in claim 26, comprising ~~the steps of~~:

providing a second workpiece to the first thermochemical processing cell after transferring the first workpiece to the second thermochemical processing cell; and,

thermochemical processing the second workpiece by providing a portion of thermochemical processing conditions of a second different thermochemical processing process, the portion of thermochemical processing conditions being same as the first portion of thermochemical processing conditions of the first thermochemical processing process.

28. (withdrawn) A method for thermal processing a workpiece as defined in claim 27, comprising ~~the steps of~~:

transferring via the common chamber the second workpiece from the first thermochemical processing cell to a third thermochemical processing cell linked to the common chamber after elapse of a third predetermined time interval;

thermochemical processing the second workpiece by providing another portion of the thermochemical processing conditions of the second thermochemical processing process.

29. (withdrawn) A method for thermal processing a workpiece as defined in claim 28, wherein at least one parameter of at least one of the first and the second portion of the thermochemical processing conditions of the first thermochemical processing process varies within a predetermined range.

30. (withdrawn) A method for thermal processing a workpiece as defined in claim 28, comprising ~~the steps of~~:

providing the first workpiece to a preheating cell linked to the common chamber; and,

preheating the first workpiece to a predetermined temperature.

31. (withdrawn) A method for thermal processing a workpiece as defined in claim 30, comprising ~~the steps of~~:

transferring via the common chamber the first workpiece from the preheating cell to a second preheating cell linked to the common chamber; and,

preheating the first workpiece to a second predetermined temperature.

32. (currently amended) A multi cell thermal processing unit comprising:

an air tight common chamber for containing an atmosphere other than ambient air;

a loading cell linked to the common chamber via a gas tight door for providing to and receiving from the common chamber a workpiece;

a first thermochemical processing cell linked to the common chamber via a heat insulating door, the first thermochemical processing cell for providing substantially fixed first thermochemical processing conditions for first thermochemical processing of the workpiece;

a second thermochemical processing cell linked to the common chamber via a heat insulating door, the second thermochemical processing cell for providing substantially fixed second thermochemical processing conditions for second thermochemical processing of the workpiece;

a cooling cell linked to the common chamber for controllably cooling the workpiece; [[and,]]

a transport mechanism disposed within the common chamber for handling and transporting the workpiece within the thermal processing unit[[.]];and,

at least a processor in control communication with the first thermochemical processing cell, the second thermochemical processing cell, and the transport mechanism for controlling:

provision of the first and the second thermochemical processing conditions, wherein at least one of the first and the second thermochemical processing conditions comprises a predetermined nitriding potential; and,

handling and transportation of the workpiece within the thermal processing unit.

33. (currently amended) A multi cell thermal processing unit as defined in claim 32, comprising:

a third thermochemical processing cell linked to the common chamber via a heat insulating door, the third thermochemical processing cell for providing substantially fixed third thermochemical processing conditions for ~~third thermochemical processing~~ post nitriding treatment of the workpiece.

34. (previously presented) A multi cell thermal processing unit as defined in claim 33, wherein the heat insulating door of at least one of the thermochemical processing cells is also a gas tight door.